

II. Claims 2, 3, 17-21 in total and claims 5-16 and 22-33 in part, drawn to a method of creating a repeat database, classified in class 707, subclass 6.

III. Claims 4 and 36-38, drawn to a database product, classified in class 707, subclass 103R.

IV. Claim 34, drawn to the process of Figure 2, classified in class 702, subclass 20.

V. Claim 35, drawn to data resulting from a method, non-statutory and unclassifiable.

Applicant hereby elects to proceed with Group II Claims and in particular therein, claims 5-16 and 22-23 as dependent upon Claim 2 only. If the Examiner believes a Preliminary Amendment should be entered in the case to eliminate reference to dependency on Claim 1 in any of the elected claims, Applicants request this be done by Examiner's Amendment (or that the Examiner inform Applicant to file a Preliminary Amendment).

Applicant also hereby requests Claims 1, 4, and 34-38 be canceled without prejudice and can be refiled in a continuing application setting forth additional inventions.

#### **Status of the Claims**

Claims 2, 3, 17-21, 39 in total, and claims 5-16 and 22-33 in part presently stand pending subject to restriction and/or election requirement.

Claims 1, 4, and 34-38 have been canceled without prejudice.

**Amendment of Claims**

Please amend the claims as follows:

1. (Canceled)
2. (Original) A method for constructing a repeat database comprising:
  - selecting a query sequence;
  - selecting known repeat sequences;
  - adding known repeat sequences into a repeat sequence database;
  - masking said query sequence with repeat sequences in the repeat sequence database;
  - testing said masked query sequence with a redundant file;
  - identifying sequences in the redundant file that contain a similar sequence to a portion of the query sequence, wherein said identified sequences and said similar portion of the query sequence make up a pairwise sequence alignment;
  - aligning all the identified pairwise sequence alignments;
  - designating the right and left endpoints of each identified sequence and any intervening sequences;
  - identifying a position within the query sequence corresponding to each endpoint;
  - defining regions within the query sequence, wherein a region is a sequence between two consecutive positions matching two endpoints;
  - identifying any two successive regions having a large variance in the number of sequence matches; and

adding the sequence within the region of the two successive regions having the highest number of sequence matches into the repeat sequence database.

3. (Original) The method of claim 2, wherein the large variance in the number of sequence matches is equal to 5 or more.
4. (Canceled)
5. (Currently Amended) The method of claim ~~1- $\theta$~~  2, wherein said sequence is a deoxyribonucleotide sequence.
6. (Currently Amended) The method of claim ~~1- $\theta$~~  2, wherein said sequence is a ribonucleotide sequence.
7. (Currently Amended) The method of claim ~~1- $\theta$~~  2, wherein said sequences are derived from animal DNA or RNA.
8. (Original) The method of claim 7, wherein said animal is a human.
9. (Original) The method of claim 8, wherein said animal is a mouse.
10. (Currently Amended) The method of claim ~~1- $\theta$~~  2, wherein said sequences are derived from plant DNA or RNA.

11. (Original) The method of claim 10, wherein said plant is a single-cell plant.
12. (Currently Amended) The method of claim ~~1- $\theta$~~  2, wherein said sequences are derived from fungal DNA or RNA.
13. (Currently Amended) The method of claim ~~1- $\theta$~~  2, wherein said sequences are derived from DNA or RNA of a microorganism or virus.
14. (Currently Amended) The method of claim ~~1- $\theta$~~  2, wherein said sequences are derived from DNA or RNA of a single-cell eukaryote.
15. (Currently Amended) The method of claim ~~1- $\theta$~~  2, wherein said sequences are derived from synthetic man-made DNA or RNA.
16. (Currently Amended) The method of claim ~~1- $\theta$~~  2, wherein said sequences are postulated based upon amino acid sequences.
17. (Original) The method of claim 2, wherein said database is encoded in a biological medium.
18. (Original) The method of claim 2, wherein said database is encoded in a written medium.
19. (Original) The method of claim 2, wherein said database is encoded in an electronic medium.

20. (Original) The method of claim 19, wherein said electronic medium is a computer-readable medium.
21. (Original) The method of claim 20, wherein said computer-readable medium is addressable through an internet connection.
22. (Currently Amended) The method of claim ~~1- $\text{or}$  2~~, wherein said redundant file is a Public Domain Database.
23. (Original) The method of claim 22, wherein said Public Domain Database is GenBank.
24. (Original) The method of claim 22, wherein said Public Domain Database is dbEST.
25. (Original) The method of claim 22, wherein said Public Domain Database is TIGR.
26. (Original) The method of claim 22, wherein said Public Domain Database is SwissProt.
27. (Currently Amended) The method of claim ~~1- $\text{or}$  2~~, wherein sequence comparisons are carried out using a Database Search Algorithm.
28. (Original) The method of claim 27, wherein said Database Search Algorithm is BLAST.
29. (Original) The method of claim 27, wherein said Database Search Algorithm is FASTA.

30. (Original) The method of claim 27, wherein said Database Search Algorithm is Smith-Waterman.

31. (Currently Amended) The method of claim 1-~~or~~ 2, wherein said sequence comparisons are carried out utilizing a Scoring Matrix Program.

32. (Original) The method of claim 31, wherein said Scoring Matrix Program is PAM.

33. (Original) The method of claim 31, wherein said Scoring Matrix Program is BLOSUM.

34 - 38. (Canceled)

39. (Original) An improved database of nucleotide sequences, the improvement consisting of repeat sequences containing a similar sequence to a portion of a query sequence, wherein said identified sequences and said similar portion of the query sequence make up a pairwise sequence alignment, and wherein all identified pairwise sequence alignments have right and left endpoints of each identified sequence and any intervening sequences.

The Commissioner is authorized to charge to McDaniel & Associates P.C. Deposit Account No. 50/1085, any fee, in addition to any fee for extension of time, deemed necessary to make timely the filing of this response.

Respectfully submitted,



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**CLAIMS LISTING**

What is claimed is:

2. A method for constructing a repeat database comprising:
  - selecting a query sequence;
  - selecting known repeat sequences;
  - adding known repeat sequences into a repeat sequence database;
  - masking said query sequence with repeat sequences in the repeat sequence database;
  - testing said masked query sequence with a redundant file;
  - identifying sequences in the redundant file that contain a similar sequence to a portion of the query sequence, wherein said identified sequences and said similar portion of the query sequence make up a pairwise sequence alignment;
  - aligning all the identified pairwise sequence alignments;
  - designating the right and left endpoints of each identified sequence and any intervening sequences;
  - identifying a position within the query sequence corresponding to each endpoint;
  - defining regions within the query sequence, wherein a region is a sequence between two consecutive positions matching two endpoints;
  - identifying any two successive regions having a large variance in the number of sequence matches; and
  - adding the sequence within the region of the two successive regions having the highest number of sequence matches into the repeat sequence database.



3. The method of claim 2, wherein the large variance in the number of sequence matches is equal to 5 or more.
5. The method of claim 2, wherein said sequence is a deoxyribonucleotide sequence.
6. The method of claim 2, wherein said sequence is a ribonucleotide sequence.
7. The method of claim 2, wherein said sequences are derived from animal DNA or RNA.
8. The method of claim 7, wherein said animal is a human.
9. The method of claim 8, wherein said animal is a mouse.
10. The method of claim 2, wherein said sequences are derived from plant DNA or RNA.
11. The method of claim 10, wherein said plant is a single-cell plant.
12. The method of claim 2, wherein said sequences are derived from fungal DNA or RNA.
13. The method of claim 2, wherein said sequences are derived from DNA or RNA of a microorganism or virus.
14. The method of claim 2, wherein said sequences are derived from DNA or RNA of a single-cell eukaryote.

15. The method of claim 2, wherein said sequences are derived from synthetic man-made DNA or RNA.
16. The method of claim 2, wherein said sequences are postulated based upon amino acid sequences.
17. The method of claim 2, wherein said database is encoded in a biological medium.
18. The method of claim 2, wherein said database is encoded in a written medium.
19. The method of claim 2, wherein said database is encoded in an electronic medium.
20. The method of claim 19, wherein said electronic medium is a computer-readable medium.
21. The method of claim 20, wherein said computer-readable medium is addressable through an internet connection.
22. The method of claim 2, wherein said redundant file is a Public Domain Database.
23. The method of claim 22, wherein said Public Domain Database is GenBank.
24. The method of claim 22, wherein said Public Domain Database is dbEST.
25. The method of claim 22, wherein said Public Domain Database is TIGR.

26. The method of claim 22, wherein said Public Domain Database is SwissProt.
27. The method of claim 2, wherein sequence comparisons are carried out using a Database Search Algorithm.
28. The method of claim 27, wherein said Database Search Algorithm is BLAST.
29. The method of claim 27, wherein said Database Search Algorithm is FASTA.
30. The method of claim 27, wherein said Database Search Algorithm is Smith-Waterman.
31. The method of claim 2, wherein said sequence comparisons are carried out utilizing a Scoring Matrix Program.
32. The method of claim 31, wherein said Scoring Matrix Program is PAM.
33. The method of claim 31, wherein said Scoring Matrix Program is BLOSUM.
39. An improved database of nucleotide sequences, the improvement consisting of repeat sequences containing a similar sequence to a portion of a query sequence, wherein said identified sequences and said similar portion of the query sequence make up a pairwise sequence alignment, and wherein all identified pairwise sequence alignments have right and left endpoints of each identified sequence and any intervening sequences.